

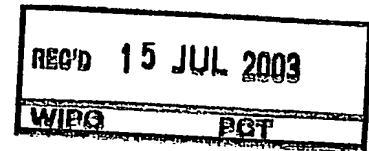
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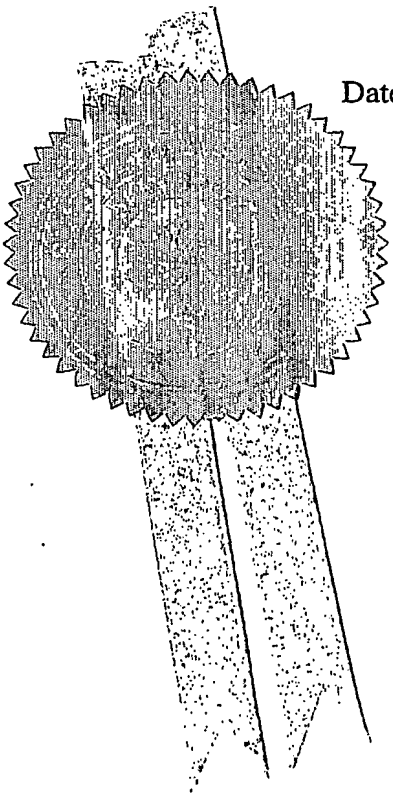
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Chapter 514

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The attached is a true copy of the Short-term Patent Application No. 02104761.7, which is still pending.

Dated this 20th day of June 2003.



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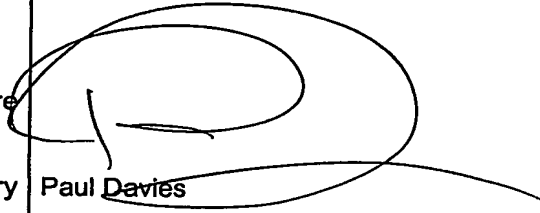
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01 Your reference	9868128:P/D:HALE:sk
02 Applicant's details (see note (4)(a))  <div style="text-align: right;">Name (underline surname) Name in Chinese (if applicable)</div> <div style="text-align: right;">Address</div> <div style="text-align: right;">Telephone</div> <div style="text-align: right;">Fax</div> <div style="text-align: right;">Kind of incorporation Country of incorporation State of incorporation (if applicable)</div>	CHAN, Wing Kin 陳永堅  Block A-C, 4/F., Wing Hin Factory Building, 31-33 Ng Fong Street, San Po Kong, Kowloon
03 Title of invention (see note (4)(b))  <div style="text-align: right;">English</div> <div style="text-align: right;">Chinese</div>	Beverage Making Apparatus   啤 (S)

<b>04 Details of International Patent Classification</b> <i>(see note (5))</i>	<b>IPC Code</b> A47J 5	<b>IPC Edition No.</b> 7th
<b>05 Use of micro-organisms</b> <i>(tick the appropriate box)</i> <p>(a) Does the invention require the use of a <b>micro-organism</b> for its performance?</p> <p>(b) If you have ticked "Yes", please indicate whether the micro-organism is available to the public at the date of filing of the application; and</p> <p>whether the micro-organism is described in the application or the specification of the patent in such a manner as to enable the invention to be performed by a person skilled in the art.</p> <p>(c) If you have ticked "No" in <b>both</b> boxes in (b), please give the following details:</p> <p>Name and address of the depositary institution where a culture of the micro-organism is deposited</p> <p>Date of deposit  <i>(Day/Month/Year)</i></p> <p>Accession No. of the deposit  <i>(section 73 and Schedule 1, Patents (General) Rules)</i></p>	<div> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No </div> <div> <input type="checkbox"/> Yes <input type="checkbox"/> No </div> <div> <input type="checkbox"/> Yes <input type="checkbox"/> No </div> <div> Name:  Address: </div>	
<b>06 Details of international application</b> If the short-term patent application is based on <p>(a) International Application No.</p> <p>(b) International Filing Date  <i>(Day/Month/Year)</i></p> <p>(c) International Publication No.</p> <p>(d) International Publication Date  <i>(Day/Month/Year)</i></p> <p>(e) Date of entry into the national phase in the People's Republic of China</p> <p>or</p> <p>Date of issuance of the National Application Notification by the State Intellectual Property Office</p> <p><i>(tick the appropriate box and enter the date in the space provided)</i></p>	<div> <input type="checkbox"/> _____  <i>(Day/Month/Year)</i> </div> <div> <input type="checkbox"/> _____  <i>(Day/Month/Year)</i> </div>	

<p>(f) Application No. of the Chinese patent application (if known)</p> <p><i>(section 125, Patents Ordinance and section 78, Patents (General) Rules)</i></p>									
<p><b>07 Details of earlier application</b> If the application is divided or derived from an earlier Hong Kong application</p> <p>(a) Section under which an earlier application is claimed <i>(see note (6))</i> <i>(tick the appropriate box)</i></p> <p>(b) Earlier Application No.</p> <p>(c) Earlier Application Filing Date <i>(Day/Month/Year)</i></p>	<p style="text-align: center;">Patents Ordinance</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input type="checkbox"/> section 116         </div> <div style="text-align: center;"> <input type="checkbox"/> section 55         </div> </div>								
<p><b>08 Details of the priority application</b> If a statement of claim of priority under section 111, Patents Ordinance is made <i>(sections 58(5)(c), 69, Patents (General) Rules)</i></p>	<p><b>Statement</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Country</th> <th style="width: 33%;">Priority Application No.</th> <th style="width: 33%;">Priority Application Filing Date</th> </tr> </thead> <tbody> <tr> <td style="height: 40px;"></td> <td></td> <td></td> </tr> </tbody> </table>			Country	Priority Application No.	Priority Application Filing Date			
Country	Priority Application No.	Priority Application Filing Date							
<p><b>09 Details of inventor</b> <i>(see note (4)(a))</i> <i>(see note (7))</i></p> <p style="text-align: right;">Name <i>(underline surname)</i></p> <p style="text-align: right;">Name in Chinese <i>(if applicable)</i></p> <p style="text-align: right;">Address</p>	<p><u>CHAN</u>, Wing Kin 陳永堅</p> <p>Block A-C, 4/F., Wing Hin Factory Building, 31-33 Ng Fong Street, San Po Kong, Kowloon</p>								
<p><b>10 Non-prejudicial disclosure</b> If the applicant is making a claim regarding non-prejudicial disclosure under section 109, Patents Ordinance, please provide a statement giving details relating to such disclosure. <i>(see note (8))</i></p>	<p><b>Statement</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Name and place of the exhibition or meeting</th> <th style="width: 33%;">Opening date of the exhibition or meeting</th> <th style="width: 33%;">Date of first disclosure</th> </tr> </thead> <tbody> <tr> <td style="height: 40px;"></td> <td></td> <td></td> </tr> </tbody> </table>			Name and place of the exhibition or meeting	Opening date of the exhibition or meeting	Date of first disclosure			
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<p><b>13</b>   <b>Name of agent</b> <i>(if you have one)</i></p> <p>Address for service in Hong Kong</p> <p>Telephone</p> <p>Fax</p> <p>Agent's code <i>(if known)</i></p>	<p>Deacons</p> <p>3<sup>rd</sup>-7<sup>th</sup>, 18<sup>th</sup> &amp; 29<sup>th</sup> Floors, Alexandra House, Central Hong Kong</p> <p>2825 9336 (Hans Lee)</p> <p>2810 0431</p>
<p><b>14</b>   I/We request the Registrar to grant a short-term patent.</p> <p>Signature</p> <p>Name of signatory</p> <p>Official capacity of signatory</p> <p>Date <i>(Day/Month/Year)</i></p>	 <p>Paul Davies</p> <p>Patent Attorney</p> <p>26/06/2002</p>

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# **BEVERAGE MAKING APPARATUS**

## **FIELD OF INVENTION**

The present invention relates to beverage making apparatuses and, more particularly, to apparatuses for making beverages from generally insoluble beverage brewing substances such as ground coffee beans, tea leaves, herbal leaves or the like. More specifically, the present invention relates to beverage making apparatuses with means for retaining insoluble beverage brewing substances in a confined space so that the insoluble or granular beverage making substances can be separated from the beverage and retained.

## **BACKGROUND OF THE INVENTION**

Beverage making apparatuses with arrangements to confine insoluble beverage brewing substances in a brewing compartment so that a fluid percolating through the brewing compartment can draw flavour from the beverage brewing substances while leaving the insoluble residual substances behind in the brewing compartment are widely used for preparing flavoured beverages such as coffee and tea.

A well-known example of such apparatuses is the traditional French Press which includes a fluid container and a plunger type strainer. The strainer is closely fitted within the container and is slidable into and along the inner wall of the fluid container. In making a beverage, a quantity of beverage brewing substances is placed inside the container and the container is then filled up with boiling water.



After a sufficient period of time for infusion has elapsed, the water is flavoured and the strainer is inserted into the fluid container and pressed towards the bottom of the container to separate the brewed beverage from the insoluble residue. The flavoured beverage is then decanted, usually, from the top spout, of the fluid container. In this traditional plunger type beverage maker, the beverage brewing substances are soaked in the hot water and the flavour is extracted by natural diffusion. A user is required to operate the plunger strainer and to decant the beverage from the container at an appropriate time to avoid excessive infusion or adverse aging of the beverage.

Another common example of such brewing apparatuses is the percolated coffee maker in which boiling water is supplied from a heated reservoir to the top of a filter charged with beverage brewing substances such as ground coffee beans. The boiling water dissolves the soluble flavoured substances from the beverage brewing substances during its transit through the filter. The flavoured beverage slowly gets through the filter by gravitation and is then collected by a beverage container underneath the filter.

In this conventional type of percolated beverage maker, the flavour is drawn by the hot boiling water during its transit through the filter and the brewing process is slow and generally uncontrollable by the user once the brewing substances and the filter have been selected.

Another example of the common beverage maker is the Mocha-type coffee maker in which hot boiling water produced in an enclosed reservoir is forced

through a percolated brewing compartment through a funnel-shape water or fluid guiding means. The brewed beverage is transported from the percolated brewing compartment to a detachable beverage container via an overflow means to prevent reverse flow of the beverage back to the enclosed reservoir. The beverage compartment is generally detachable so that the brewed beverage can be served directly from the beverage compartment. This type of beverage maker has a relatively complicated structure and has to rely on external heating which is inconvenient for daily domestic or office use. Furthermore, although this type of active brewing results in a faster brewing process, the brewing process is to a large extent uncontrollable by the user and is dependent on the external heating power which generally varies from one source to another source. Consequently, such beverage brewing apparatuses are not optimal for applications in which control of the heating power is essential for good brewing. Hence, it is desirable to be able to provide a beverage making apparatus in which the heating power for brewing can be controlled easily by the user.

On the other hand, beverage brewing apparatuses having a more controllable brewing process always requires a more complicated structure which means more complicated assembly as well as increased costs and weight. Thus, it will be desirable to provide beverage brewing apparatuses with a controllable heating source for enhanced brewing processes while maintaining a relative simple structure, and, therefore low costs for the benefit of the public.

## **OBJECT OF THE INVENTION**

Therefore, it is an object of the present invention to provide beverage brewing apparatuses in which the brewing process is less dependent on external heating power variations. It is also an object of the present invention to provide beverage brewing apparatuses which are simple in structure and easy to assemble while providing a more controllable thermal brewing process. It is a further object of the present invention to provide a beverage brewing apparatus with a simple, modular or sub-assembly design which is generally similar to the simple French Press type percolator and yet fulfils the more stringent brewing requirements necessary for more versatile beverage preparations. At a minimum, it is an object of the present invention to provide the public with a choice of improved beverage brewing apparatuses to serve individual requirements for the benefit of the public.

### **SUMMARY OF THE INVENTION**

According to a general aspect of the present invention, there is provided an apparatus for beverage making including a first fluid compartment, a beverage compartment and a beverage processing means, said beverage processing means interconnects said first fluid compartment and said beverage compartment, wherein:-

- said beverage processing means includes a fluid inlet and a beverage outlet and having a receptacle means for receiving beverage making substances, said receptacle means includes means for generally retaining said beverage making substances in said receptacle while permitting passage of fluid through said receptacle means;

- a first fluid guiding means interconnecting said first fluid compartment and said beverage processing means for guiding fluid to move from said first fluid compartment to said beverage processing means,
- a second fluid guiding means interconnecting said beverage processing means and said beverage compartment for guiding fluid to flow from said beverage processing means to said beverage compartment, said second fluid guiding means includes means to prevent reverse flow of fluid from said beverage compartment to said first fluid compartment,
- a heating means is disposed adjacent to said first fluid compartment;
- said first fluid compartment, said beverage compartment and said beverage processing means are arranged so that heating of said first fluid compartment to a pre-determined level causes fluid to move from said first fluid compartment to said beverage compartment through said first and second fluid guiding means of said beverage processing means.

Preferably, said first fluid compartment includes a top portion, a bottom portion and a peripheral wall interconnecting said top and bottom portions, said heating means includes electrical heating elements installed underneath said bottom portion of said first fluid compartment, said first fluid guiding means includes a tubular member extending from the fluid inlet of said beverage processing means towards said bottom portion of said first fluid compartment, said

first fluid compartment and said beverage compartment being communicable only through said beverage processing means.

Preferably, said top portion of said first fluid compartment includes an aperture for closely fitting about said beverage processing means, said first fluid compartment and said beverage compartment being communicable only through said aperture and, said beverage processing means and said top portion of said first fluid compartment being engageable by screw thread means in a substantially leak-proof manner.

Preferably, said beverage compartment being detachably connectible to said first fluid compartment, said beverage processing means being sandwiched between said first fluid compartment and said beverage compartment and the sandwiched interface between said beverage processing means and said first fluid compartment and said beverage compartment being substantially leakage-tight.

Preferably, said beverage compartment includes a top portion distal from said receptacle means of said beverage processing means and a bottom portion proximal to said receptacle means, said second fluid guiding means of said beverage processing means includes a tubular member extending from said bottom portion of said beverage compartment towards the top portion of said beverage compartment, said tubular member includes an overflow aperture disposed at a level elevated above the bottom portion of said beverage compartment.

Preferably, said heating means for heating first fluid compartment includes means for controlling and varying the heating power emanating from said heating

means, said first fluid guiding means being formed as a part of said beverage processing means and said second fluid guiding means being formed as a part of said beverage compartment.

Preferably, the apparatus includes a container having a top portion, a bottom portion, and a peripheral wall interconnecting said top and bottom portions, said beverage processing means being in a modular sub-assembly form and is slidably movable along said peripheral wall, said beverage processing means includes sealing means for partitioning said container into said first fluid compartment and said beverage compartment, said beverage compartment being proximal to said top portion, said apparatus further including means to restrict movements of said beverage processing means within said container.

Preferably, said receptacle means of said modular beverage processing means for receiving beverage making substances includes a hollow compartment disposed intermediate between said top and bottom portions of said container, said beverage processing means further includes partitioning means for separating said container into said first fluid compartment and said beverage compartment, said partitioning means includes a fluid blocking member extending between said hollow compartment and said peripheral wall of said container, said beverage compartment being defined between said fluid blocking member and said top portion of said container, said first fluid compartment being defined between said blocking member and said bottom portion of said container.

Preferably, a sealing member is disposed between the outer end of said blocking member and the inside of said peripheral wall of said container.

Preferably, said sealing member includes an O-ring.

Preferably, said beverage processing means is restrained within said container by a lid which covers the top portion of said container.

Preferably, said heating means for heating said first fluid compartment includes a controlling means for varying the heating power emanating from said heating means.

According to another aspect of the present invention, there is provided an apparatus for making beverages including:-

- a main container including a top portion, a bottom portion and a peripheral wall interconnecting said top and bottom portions;
- a beverage processing sub-assembly including a receptacle for receiving beverage making substances, partitioning means separating said main container into a first fluid compartment and a beverage compartment, a first fluid guiding means for guiding fluid to move from said first fluid movement to said receptacle, a second fluid guiding means for guiding fluid to move from said receptacle to said beverage compartment, said first fluid compartment being defined between said partitioning means and said bottom portion of said main container, said beverage compartment being defined between said partitioning means

and said top portion of said main container, said first fluid compartment and said beverage compartment being generally not communicable except through said receptacle, and said partitioning means being slidably movable inside said main container and along said peripheral wall.

According to yet another aspect of the present invention, there is provided a beverage processing sub-assembly including a receptacle for receiving beverage making substances, partitioning means separating a main container into a first fluid compartment and a beverage compartment, a first fluid guiding means for guiding fluid to move from said first fluid movement to said receptacle, a second fluid guiding means for guiding fluid to move from said receptacle to said beverage compartment, said first fluid compartment being defined between said partitioning means and said bottom portion of said main container, said beverage compartment being defined between said partitioning means and said top portion of said main container, said first fluid compartment and said beverage compartment being generally not communicable except through said receptacle, and said partitioning means being slidably movable inside said main container and along said peripheral wall.

Preferably, said beverage container being formed by a peripheral wall upwardly extending from said partitioning means.

Preferably, said first fluid guiding means includes a tubular member extending from said receptacle towards said bottom portion of said main container,



said tubular member includes at least a fluid inlet aperture, said second fluid guiding means includes a tubular member extending from said receptacle towards said top portion of said main container, said tubular member includes a fluid outlet aperture disposed at level elevated above said receptacle.

Preferably, said receptacle includes means for retaining said beverage making substances within said receptacle.

Preferably, said means for retaining said beverage making substances includes means for blocking movements of solid granules such as a grille, a screen, a fitter, a mesh or the like.

Preferably, including a base on which the bottom portion of said main container is supported and inside which electric heating means is installed.

Preferably, power controlling means for varying the heating power generated by said heating means.

Preferably, said apparatus being made of microwave compatible material so that the fluid in said container can be heated by a microwave oven.

Preferably, said beverage making substances include any of ground coffee beans, tea leaves and the like.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

Preferred embodiments of beverage brewing or making apparatuses of the present invention will be explained in further detail below by way of examples and with reference to the accompanying drawings, in which:-

Fig. 1 is a drawing showing the exploded view of a first preferred embodiment of a beverage brewing apparatus of the present invention,

Fig. 2 shows a front view of the beverage maker of Fig. 1 and assembled,

Fig. 3 shows a cross-sectional view of the beverage maker of Fig. 2, the section being taken longitudinally through the middle of Fig. 2 when viewed from the right side,

Fig. 4 is a side view of a second embodiment of a beverage maker of the present invention,

Fig. 5 is a longitudinally cross-sectional view of the beverage maker of Fig. 4, the section being taken through the middle of the beverage maker and intersecting with the spout and handle portion,

Fig. 6 is an exploded view of the beverage maker of Fig. 4,

Fig. 7 shows various views of the sub-assembly, including the top view, a side view, the front view and the longitudinal cross-sectional view of the beverage processing means taken along the same section as Fig. 5,

Fig. 8 shows a perspective view of a preferred example of the beverage processing sub-assembly of the present invention, and,

Fig. 9 is an exposed view showing a combination of the sub-assembly of Fig. 8 with a main container similar to that of a conventional press type beverage maker.

## **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

Referring to Figs. 1 to 3, there is shown a first preferred embodiment of the present invention of a beverage making apparatus or a beverage maker for sassiness.

The beverage maker 10 includes a first fluid vessel 20 defining a first fluid compartment 21 for receiving water or other appropriate fluid base for preparing beverages. The first fluid compartment 21 includes a top portion 22 with an aperture 23, a closed bottom portion 24 and a peripheral wall 25 interconnecting the top and bottom portion. The peripheral wall 25 surrounds and defines the space of the first fluid compartment 21. A handle 26 is formed on the peripheral wall 25 of the first fluid compartment 21 so that the beverage maker 10 or the first fluid vessel 20 can be easily carried around by the user. The first fluid compartment 21 can be formed from metal, glass or hard plastics and the handle 26 is preferably, although not essentially, made of a thermally insulating material. To ensure optimal thermal conductivity between the heating elements in the base the first fluid compartment 21, the bottom portion 24 of the first fluid compartment 21 is preferably made of metal or other thermally conductive material. Of course, the first fluid compartment 21 including its bottom portion 24 can be generally made from glass or other appropriate heat resistant transparent materials for aesthetic

appeals, although this may represent a compromise in the thermal conductivity at the bottom portion of the first fluid compartment. Naturally, a combination of metal and non-metal can be used to form the first fluid vessel. The top portion 22 of the first fluid compartment 21 is formed with a transversally extending shoulder portion 27 and a narrowed aperture 23. The inside edge of the aperture is preferably provided with fastening means for securing the beverage brewing means. In the present embodiment, screw threads are formed on the inside of the aperture for corresponding engagement with the flange, thread or threads on the outer edge of beverage processing means to be explained in the description below.

Fastening means are also formed on the top upper most edge of the first fluid vessel for corresponding detachable engagement with the beverage container. In the present embodiment, stud-and-slot engagement arrangements are shown as an example. The first fluid compartment 21 of the first fluid vessel 20 is mounted on a supporting base 30. The supporting base 30 includes a base circuitry compartment inside which electrical heating elements 31 for heating the fluid stored inside the first fluid compartment are installed. The heating elements 31 are preferably installed underneath the bottom portion 24 of the first fluid compartment but elevated above the base support to avoid overheating of the supporting surface. An electrical cable 32 which extends from the base circuitry compartment 33 to the outside for connecting the heating elements 31 to the external power source is also shown for completeness. A power control device is further provided to control and vary the thermal power generated by the electrical heating means 31 in order to enhance the controllability of the brewing process so

that a user can select the appropriate brewing power or power sequence for a preferred brewing process.

The heating element 31 can, for example, be coil heaters which are preferably mounted proximal to the bottom portion of the first fluid compartment for optimal heat transfer. The base circuitry compartment is supported from a bottom stand or base stand so that a sufficient space is maintained between the heating elements and the base stand to avoid overheating of the surface in contact with the base stand.

In the present embodiment, the supporting base 30 and the base circuitry compartment 33 are fastened to the first fluid vessel 20. Of course, the supporting base portion 30 and the first fluid vessel 20 can be provided with detachable engagement means for releasable attachment.

The beverage container 40 includes a beverage compartment 41 having a top portion 42, a bottom portion 43 and a peripheral wall 44 interconnecting the top and bottom portions. The bottom portion 43 of the beverage container 40 is provided with an aperture 44 and includes an overflow fluid guiding means 45 for guiding the flow of beverage from the beverage processing means to the beverage container in a manner to be explained below. The overflow beverage guiding means (or the second fluid guiding means 45) includes a base portion covering the aperture 44 on the bottom portion 43 of the beverage container 40 and includes a central portion with a tubular member 46 extending axially upwardly towards the top portion 42 of the beverage container 40.

An overflow aperture is, which is located at an elevated level above the bottom portion 43 of the beverage container, provided near the upper end of the tubular member 46. With this overflow arrangement, beverage brewed and delivered through the beverage processing means will enter the beverage container 40 through the elevated aperture. At the same time, the beverage contained in the beverage container at a level below the elevated aperture will be prevented from flowing back into the first fluid compartment 21 by the upwardly extending tubular member 46. A hinged lid 47 is also provided to cover the beverage compartment 41 and to avoid splashing of the beverage outside the beverage container during brewing. A spout 48 is provided on the upper part of the peripheral wall 44 so that the beverage can be dispensed smoothly. The peripheral wall 44 of the beverage container can be made of metal, glass, plastic or other heat resistant materials, although a transparent heat resistant material may be more aesthetically pleasing and can indicate the level and the state of the beverage already brewed. Similarly, the bottom portion of the beverage container 40 is preferably made of metal or heat resistant hard plastics. In the Figures, the overflow second fluid guiding means 45 is integrally formed with the bottom portion of the beverage container. However, the fluid overflow guiding means may also be detachably attachable from the bottom portion of the beverage container, for example, by screw-thread fitting for easily cleaning, maintenance and replacement. This overflow device can be snap- or -screw fitted to the bottom portion for fluid tightness to avoid leakage through the interface back to the first fluid compartment. Of course, sealing means may be provided to improve fluid tightness.

A separate handle is preferably formed on the peripheral wall 40 of the beverage container 40 so that the beverage container can be easily moved around for beverage dispensing.

The beverage processing means includes a compartment 51 for receiving beverage making substances such as ground coffee beans, tea leaves, herbal leaves, insoluble granules with flavour and other similar substances. This compartment 51 includes a cylindrical wall 52 with a fluid inlet and a fluid or beverage outlet. To retain the brewing substances inside the compartment, a percolated filtering means 53 is provided at the fluid inlet to prevent insoluble substances from entering the first fluid compartment 21 through the first fluid guiding means 60. This percolated filter 53 can, for example, be a meshed element, a percolated plate, a grille or a wire screen or other appropriate filtering element which allows passage of fluid but prevents through passage of particles or granules exceeding a certain average size. A locking or support member 54 is provided to fasten the filter means in position.

To prevent the brewing substances from entering the beverage container, a particle blocking means 55 is installed adjacent to the fluid outlet of the beverage substances receiving compartment 51. This particle blocking means 55 can be similar to the filter 53 at the fluid inlet and performs similar functions. The particle blocking member 55 is retained in the space between the beverage container 40 and the first fluid vessel 20 when they are fastened together. A sealing member 56 is provided between the particle blocking member 55 and the first fluid container 20 to prevent fluid leakage during transit of the beverage from

the beverage processing means to the beverage container. The beverage substances receiving compartment 51 is received inside a first fluid guiding means 60. The first fluid guiding means includes a funnel-shaped member having a compartment 61 shaped for closely receiving the cylindrical member 52 of the beverage substances receiving compartment 51. The compartment 51 is defined and enclosed by a peripheral wall 63. The bottom of the compartment 61 is connected to a tubular portion 62 which has a generally smaller dimension than the bottom of the compartment 61 and extends towards the bottom portion 24 of the first fluid compartment 21. This funnel-shaped member 60 is provided with an external flange for screw fitting with the screw threads provided on the inside of the aperture 23 formed on the top portion 22 of the first fluid compartment 21 for secure arrangement.

Turning now to the operation of the beverage maker of Figs. 1, 2 and 3. Beverage brewing substances such as ground coffee beans, tea leaves, herbal leaves or the like, are placed inside the receiving compartment 52 which has been pre-mounted with the filter member 53 and the filter securing member 54 near the fluid inlet. The particle blocking member 55 and the associated sealing member 56 are then placed on the top edge of the compartment 52. This beverage substances filled compartment 52 is then inserted into the funnel-shaped member 60 which provides a hollow housing for receiving the compartment 52 as well as providing a path to the first fluid guiding means which is a tubular member 62 extending from the bottom of the cylindrical housing 63 of the funnel-shaped member towards the bottom of the first fluid compartment. The assembled beverage processing means,



including the filter means 53, the beverage substances receiving compartment 51, the funnel-shaped member 60 with the cylindrical housing 63 with the downwardly dependent tubular portion 62 extending from the bottom part of the cylindrical housing, the particle blocking member 55 and the associated sealing member 56, are then secured to the threaded aperture of the top portion of the first fluid compartment which has already been filled with water or other beverage making fluid. After the beverage processing means has been properly placed and secured with the fluid vessel, the beverage container 40 is then secured to the first fluid vessel 20, thereby retaining the beverage brewing substances, which are stored between the particle blocking member 55 and the filter means 53 which respectively define the beverage outlet and the fluid inlet, in the space interconnecting the beverage container 40 and the first fluid compartment 20.

When the water or other fluid in the first fluid compartment is heated by the electrical heating elements, the vapour generated will increase the air pressure inside the first fluid compartment which is substantially air and fluid tight except through the apertures formed on the fluid processing means. When the first fluid compartments 21 has been sufficiently heated, the vapour pressure inside the first fluid compartment 21 will force the hot water to move up along the tubular member 62 of the first fluid guiding means 60 and interacts with the beverage making substances contained inside the beverage receiving compartment 51. This interaction between the upwardly moving water and the beverage brewing substances allows the water or other appropriate fluid to draw flavour from the beverage brewing substances and produces a flavoured beverage. Continuous

heating of the first fluid compartment will cause the flavoured beverage to move further upwards towards the tubular member 46 of the second fluid guiding means 45. The flavoured or brewed beverage will then move on to the beverage compartment 41 through the elevated aperture of the overflow means 45. The elevated aperture prevents reverse flowing of the beverage back to the first fluid compartment 21.

As the vapour pressure inside the first fluid compartment is generally dependent on the rate of water boiling inside that compartment, a user can by varying the instantaneous heating power control the speed of passage of the water through the beverage brewing substances receiving compartment to control the transit time and, therefore, control the brewing process according to his preference. As the heating power of this brewing apparatus is controllable and the variation is generally repeatable according to the graduation provided for power indication, user can repeat the brewing process with reasonable certainty and ease without having to be too concerned about the variation of the external heating power.

Referring to Figs. 4 to 9, there is shown a second preferred embodiment of the present invention. In this second preferred embodiment, the beverage making apparatus 100 has a simple, modular and robust structure while fulfilling the essential features for fast and controllable beverage brewing. The beverage making apparatus 100 includes a main container having a top portion 110, a bottom portion 120 and a peripheral wall 130 interconnecting the top and bottom portions. Like a traditional French Press type coffee percolator, the peripheral wall can be substantially cylindrical and can be made from metal, glass and/or heat resistant

plastics, although the main container is preferably from a heat resistant transparent material so that a user can observe the brewing process and take necessary steps when certain changes have occurred inside the transparent main container.

The main container is supported on a base support 140 which is similar to that of the first embodiment and includes a base compartment 141 inside which electrical heating elements 142, power control means and other utilitarian features can be placed. A light indicator 143 is also provided on the base support 140 to indicate the operating states of the brewing apparatus 100. Of course, other additional displays such as time, temperature and power level can be provided in addition. Similar to a conventional French Press percolator, a hinged lid 150 and a handle 151 are also provided on the main housing.

In this second preferred embodiment, the beverage container and the beverage processing means are arranged in a sub-assembly form. The beverage container 160 includes a cylindrical housing 161 which can be closely fitted within the housing 130 of the main container and is provided with circumferential sealing members 162, such as O-rings, extending between the circumferential wall 161 of the beverage container and the inner wall 161 of the main container to provide air tightness. The beverage container 160 also includes a closed bottom portion 163 on which an overflow fluid guiding means 170 (or the equivalent second fluid guiding means) similar to that described in the first preferred embodiment above. A hook or retaining means 180 is provided on the circumferential wall 161 of the beverage container 160 and extends above the top portion 110 of the main container. This hook or retention member 180 is designed so that it can be

engaged by the main housing to retain the beverage processing means in position during the brewing process. In this particular example, the hook member 180 is retained in position with respect to the main container by a latch when the hinged lid is closed.

Referring to Figs. 5 to 7, a funnel member 190 including a substantial cylindrical housing 191 with a base portion 192 from which a tubular member 193 of a smaller dimension downwardly extending therefrom is attached to the underside of the bottom portion 163 of the beverage container 160 by, for example, screw thread means. This funnel-shaped member 190 is equivalent or corresponds to the second fluid guiding means described in the first preferred embodiment. This space enclosed within the circumferential wall 191 of the upper portion of the funnel-shaped member defines a compartment for receiving the beverage brewing substances. By providing filtering and blocking members respectively at the fluid inlet and outlet of the beverage brewing substances receiving compartment, a sub-assembly of beverage brewing means is formed by the attachment of the funnel-shaped member to the underside of the beverage container. To enhance personal safety, a pressure release valve 195 is also provided at the bottom portion of the beverage container.

Turning to the operation of this preferred embodiment, beverage making substances such as ground coffee beans or tea leaves are placed inside the beverage substances receiving compartment defined by the circumferential wall 191 of the main housing of the funnel-shaped member 190 after a filter has been placed at the fluid inlet of the beverage substances receiving compartment 196. A blocking

member is then placed at the top end of the funnel-shaped member before it is secured to the underside 163 of the beverage container 160. The sub-assembly including the beverage container and the funnel-shaped member is then inserted into the main housing which is already filled with water or other appropriate fluid. Because of the closely fitted sealing members around the outside the beverage container, the space inside the main container which is underneath the bottom side 163 of the beverage container 160 is substantially non-communicable with the outside except through the tubular member 193 of the funnel-shaped member 190. When heat is applied to the bottom portion 120 of the main container, vapour pressure inside the first fluid compartment 210, which is defined between the underside of the beverage container and the bottom portion of the main container, increases and forces the water to pass from the funnel-shaped member 190 to the beverage container 160. During the transit of the hot boiling water through the beverage processing means, the hot boiling water will draw flavour from the beverage making substances before entering the beverage container through the overflow aperture means. Similarly, by varying the electrical heating power supplied to the electrical heating elements, the beverage making process can be better controlled and adjusted according to personal preferences.

In this embodiment, it will be appreciated that the more important operative elements, namely, the beverage container, the first fluid guiding means for guiding fluid from the main container to the beverage processing means, the beverage processing means, the second fluid guiding means (all the overflow means), are formed as a sub-assembly 200 which can be inserted into or removed from the

main container as a single unit. This modular or sub-assembly form of the brewing means offers additional flexibility and convenience to the user. In addition, the main container for the present specific embodiment can be made similarly to that of a conventional French Press type container, although with an additional base support and heating elements mounted inside. In this way, manufacturers can provide a standard container which can be used as water boiler, a French Press, or a beverage making apparatus of the present invention by using appropriate sub-assemblies. Thus, consumers can separately purchase the brewing sub-assembly form of the beverage, brewing apparatus comprising the beverage container, the funnel-shaped member and the overflow means, as an accessory for brewing beverages of their preference when desired.

While the beverage container is integrally formed as part of the beverage processing sub-assembly in this second preferred embodiment, it will be appreciated that this sub-assembly can be formed without the beverage container so that the beverage processing sub-assembly includes the overflow first fluid guiding means, the second fluid guiding means and the beverage substances receiving compartment which is enclosed within a peripheral surrounding wall. In addition, a partitioning member which extend from the peripheral wall towards the main container in a closely fitted manner, preferably with sealing means such as O-rings, interfacing between the partitioning member and the inside of the main container for fluid and air tightness. With such a modified sub-assembly, the beverage container will be defined by the space above the partitioning member and the first fluid compartment (similar to that of the first preferred embodiment) is

defined between the underside of the partitioning member and the bottom portion of the main container. The brewed beverage can be poured from the space above the partitioning member. In this arrangement, the beverage processing sub-assembly is formed integrally with the overflow second fluid guiding means but without an integral beverage container, although in the second preferred embodiment, the beverage container can be removed from the main container and carried by the user to serve the beverage without having to carry the main container around.

In a further embodiment of the present invention, the beverage making apparatus shown in Figs. 4 to 7 can be modified for compatibility with a microwave oven. In this case, the heating elements are no longer necessary and the apparatus can be made of a microwave permeable or compatible material. More specifically, the beverage processing sub-assembly can be made of a microwave compatible material so that it can be used with the main container of a French Press for microwave oven brewing of beverages.

While the present invention has been explained by reference to the preferred embodiments described above, it will be appreciated that the embodiments are only examples provided to illustrate the present invention and are not meant to be restrictive on the scope and spirit of the present invention. This invention should be determined from the general principles and spirit of the invention as described above. In particular, variations or modifications which are obvious or trivial to persons skilled in the art, as well as improvements made on the basis of the present invention, should be considered as falling within the scope

and boundary of the present invention. Furthermore, while the present invention has been explained by reference to certain type of beverage, it should be appreciated that the invention can apply, whether with or without modification, to other beverages or beverage brewing substances application.



## CLAIMS

1. An apparatus for beverage making including a first fluid compartment, a beverage compartment and a beverage processing means, said beverage processing means interconnects said first fluid compartment and said beverage compartment, wherein:-
  - 5       • said beverage processing means includes a fluid inlet and a beverage outlet and having a receptacle means for receiving beverage making substances, said receptacle means includes means for generally retaining said beverage making substances in said receptacle while permitting passage of fluid through said receptacle means;
  - 10       • a first fluid guiding means interconnecting said first fluid compartment and said beverage processing means for guiding fluid to move from said first fluid compartment to said beverage processing means,
  - 15       • a second fluid guiding means interconnecting said beverage processing means and said beverage compartment for guiding fluid to flow from said beverage processing means to said beverage compartment, said second fluid guiding means includes means to prevent reverse flow of fluid from said beverage compartment to said first fluid compartment,
  - 20       • a heating means is disposed adjacent to said first fluid compartment;
  - said first fluid compartment, said beverage compartment and said beverage processing means are arranged so that heating of said first

fluid compartment to a pre-determined level causes fluid to move from said first fluid compartment to said beverage compartment through said first and second fluid guiding means of said beverage processing means.

- 5     2.     An apparatus of claim 1, wherein said first fluid compartment includes a top portion, a bottom portion and a peripheral wall interconnecting said top and bottom portions, said heating means includes electrical heating elements installed underneath said bottom portion of said first fluid compartment, said first fluid guiding means includes a tubular member extending from the fluid  
10     inlet of said beverage processing means towards said bottom portion of said first fluid compartment, said first fluid compartment and said beverage compartment being communicable only through said beverage processing means.
- 15     3.     An apparatus according to claim 2, wherein said top portion of said first fluid compartment includes an aperture for closely fitting about said beverage processing means, said first fluid compartment and said beverage compartment being communicable only through said aperture and, said beverage processing means and said top portion of said first fluid compartment being engageable by screw thread means in a substantially  
20     leak-proof manner.
4.     An apparatus according to claim 2, wherein said beverage compartment being detachably connectible to said first fluid compartment, said beverage

processing means being sandwiched between said first fluid compartment and said beverage compartment and the sandwiched interface between said beverage processing means and said first fluid compartment and said beverage compartment being substantially leakage-tight.

- 5     5.     An apparatus according to claim 2, wherein said beverage compartment includes a top portion distal from said receptacle means of said beverage processing means and a bottom portion proximal to said receptacle means, said second fluid guiding means of said beverage processing means includes a tubular member extending from said bottom portion of said beverage compartment towards the top portion of said beverage compartment, said  
10     tubular member includes an overflow aperture disposed at a level elevated above the bottom portion of said beverage compartment.
6.     An apparatus according to claim 1, wherein said heating means for heating first fluid compartment includes means for controlling and varying the  
15     heating power emanating from said heating means, said first fluid guiding means being formed as a part of said beverage processing means and said second fluid guiding means being formed as a part of said beverage compartment.
7.     An apparatus according to claim 1 including a container having a top portion,  
20     a bottom portion, and a peripheral wall interconnecting said top and bottom portions, said beverage processing means being in a modular sub-assembly form and is slidably movable along said peripheral wall, said beverage

processing means includes sealing means for partitioning said container into said first fluid compartment and said beverage compartment, said beverage compartment being proximal to said top portion, said apparatus further including means to restrict movements of said beverage processing means within said container.

8. An apparatus according to claim 7, wherein said receptacle means of said modular beverage processing means for receiving beverage making substances includes a hollow compartment disposed intermediate between said top and bottom portions of said container, said beverage processing means further includes partitioning means for separating said container into said first fluid compartment and said beverage compartment, said partitioning means includes a fluid blocking member extending between said hollow compartment and said peripheral wall of said container, said beverage compartment being defined between said fluid blocking member and said top portion of said container, said first fluid compartment being defined between said blocking member and said bottom portion of said container.

9. An apparatus according to claim 7, wherein a sealing member is disposed between the outer end of said blocking member and the inside of said peripheral wall of said container.

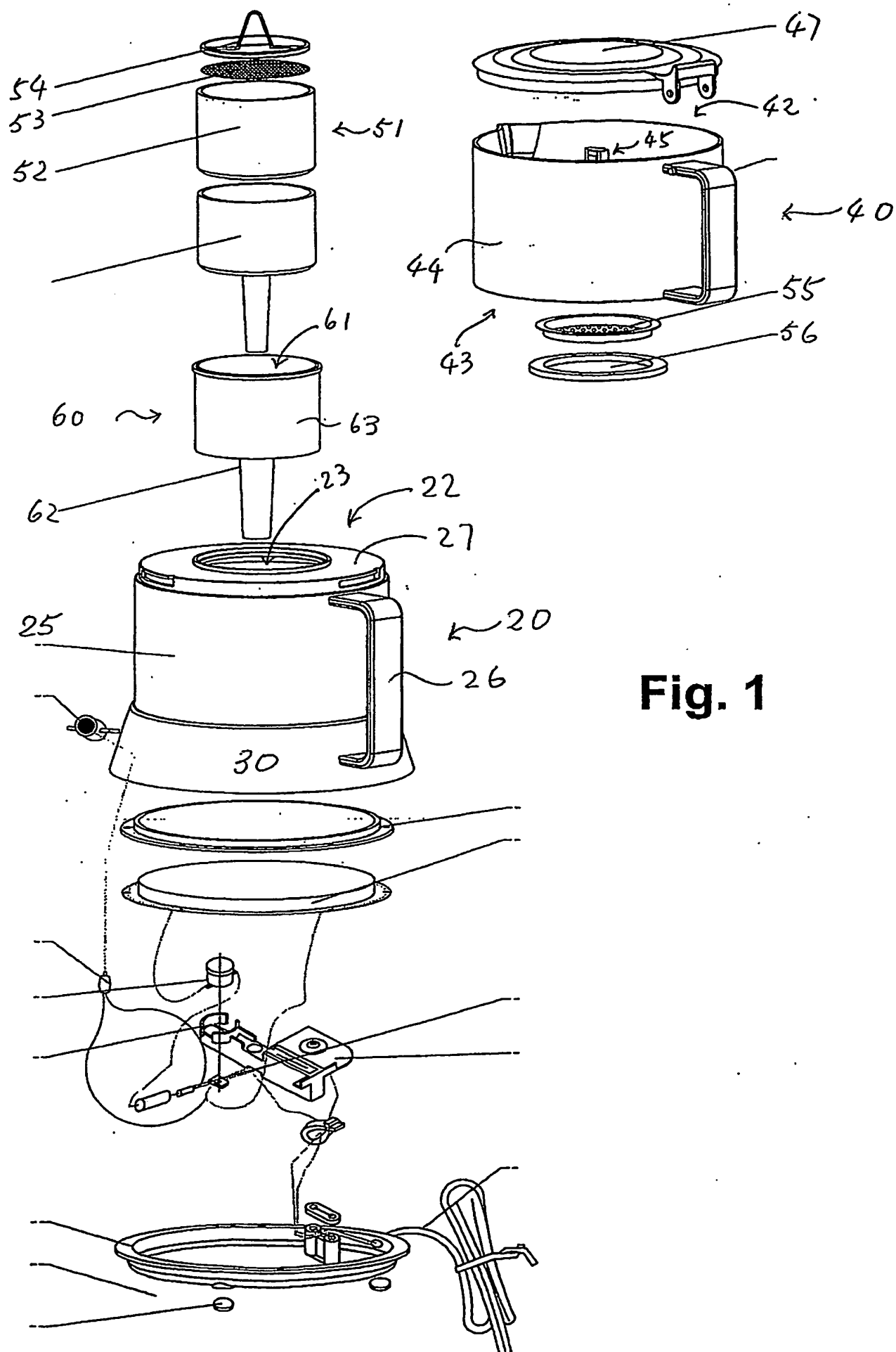
10. An apparatus according to claim 8, wherein said sealing member includes an O-ring.

11. An apparatus according to claim 7, wherein said beverage processing means is restrained within said container by a lid which covers the top portion of said container.
12. An apparatus according to claim 6, wherein said heating means for heating said first fluid compartment includes a controlling means for varying the heating power emanating from said heating means.
13. An apparatus for making beverages including:-
- a main container including a top portion, a bottom portion and a peripheral wall interconnecting said top and bottom portions;
  - a beverage processing sub-assembly including a receptacle for receiving beverage making substances, partitioning means separating said main container into a first fluid compartment and a beverage compartment, a first fluid guiding means for guiding fluid to move from said first fluid movement to said receptacle, a second fluid guiding means for guiding fluid to move from said receptacle to said beverage compartment, said first fluid compartment being defined between said partitioning means and said bottom portion of said main container, said beverage compartment being defined between said partitioning means and said top portion of said main container, said first fluid compartment and said beverage compartment being generally not communicable except through said receptacle, and said partitioning means being

slidably movable inside said main container and along said peripheral wall.

14. An apparatus according to claim 13, wherein said first fluid guiding means includes a tubular member extending from said receptacle towards said bottom portion of said main container, said tubular member includes at least a fluid inlet aperture, said second fluid guiding means includes a tubular member extending from said receptacle towards said top portion of said main container, said tubular member includes a fluid outlet aperture disposed at level elevated above said receptacle.
15. An apparatus according to claim 14, wherein said receptacle includes means for retaining said beverage making substances within said receptacle.
16. An apparatus according to claim 15, wherein said means for retaining said beverage making substances includes means for blocking movements of solid granules such as a grille, a screen, a fitter, a mesh or the like.
17. An apparatus according to claims 13 or 14, further including a base on which the bottom portion of said main container is supported and inside which electric heating means is installed.
18. An apparatus according to claim 17, further including power controlling means for varying the heating power generated by said heating means.

19. An apparatus according to claims 13 or 14, wherein said apparatus being made of microwave compatible material so that the fluid in said container can be heated by a microwave oven.
  20. An apparatus of any of the preceding claims, wherein said beverage making substances include any of ground coffee beans, tea leaves and the like.
- 5



**Fig. 1**



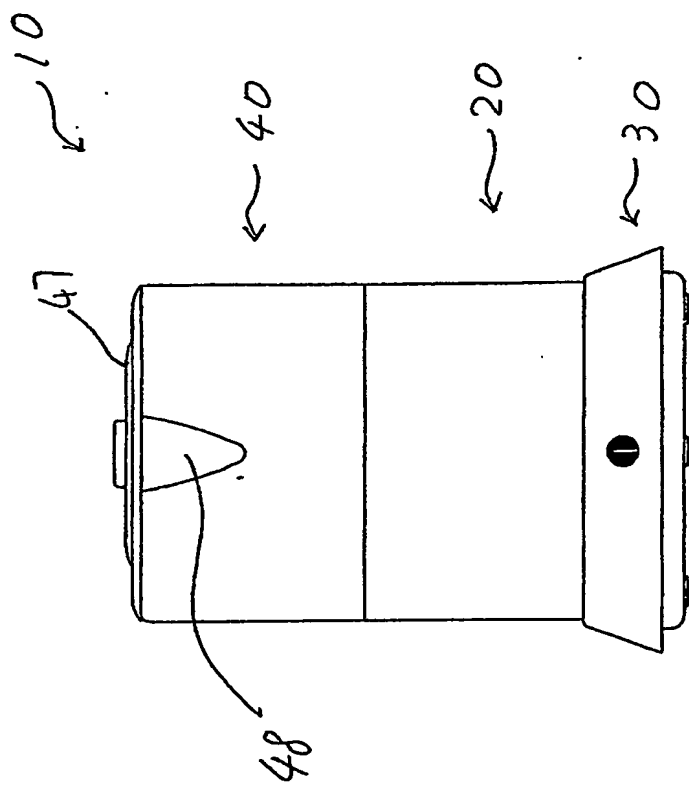


Fig. 2

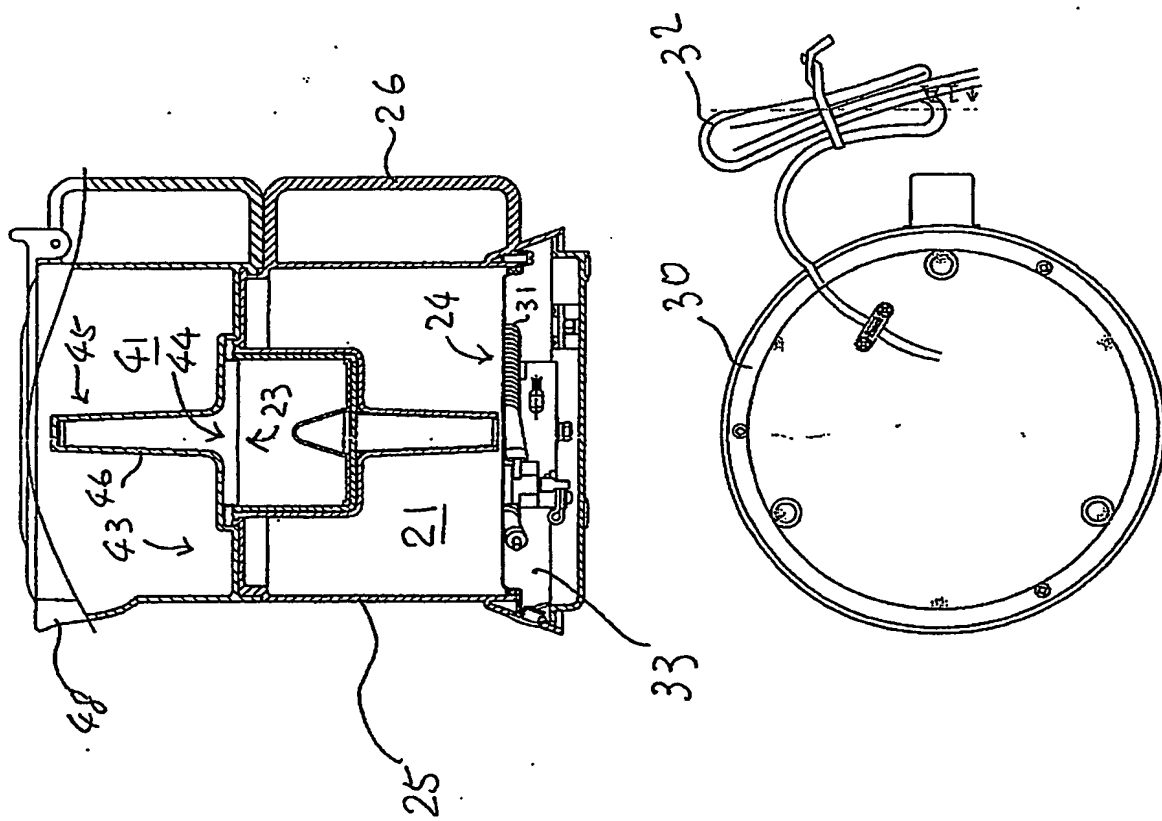


Fig. 3

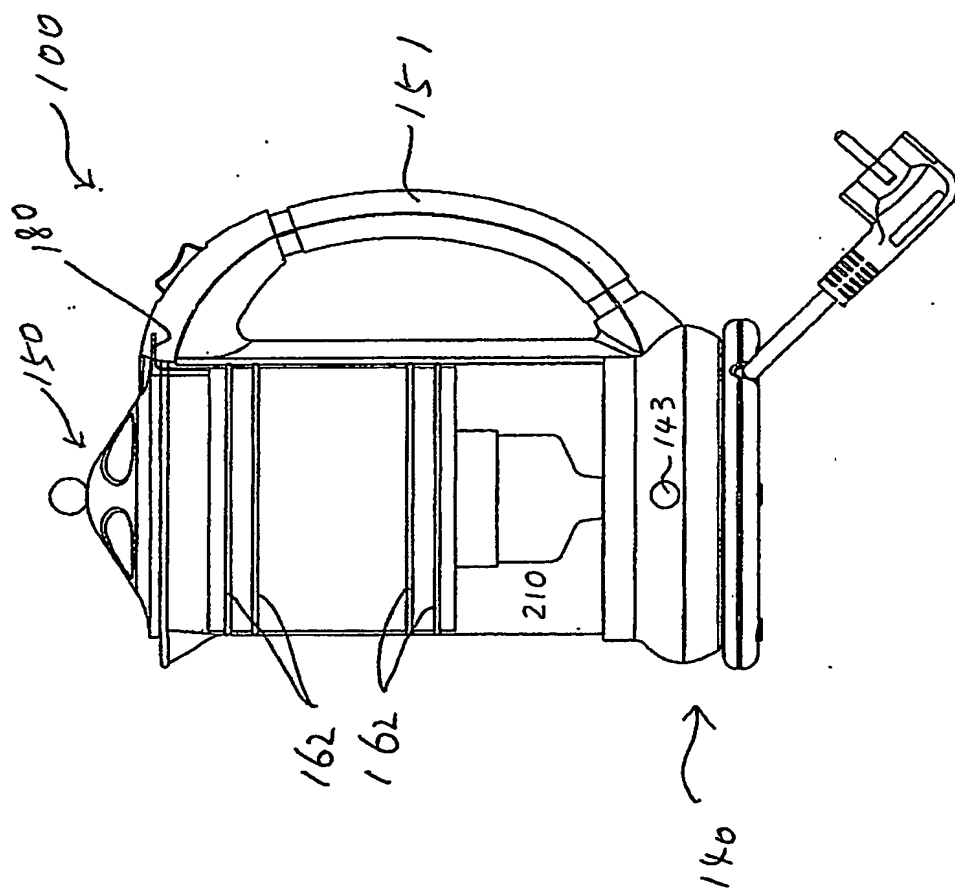


Fig. 4

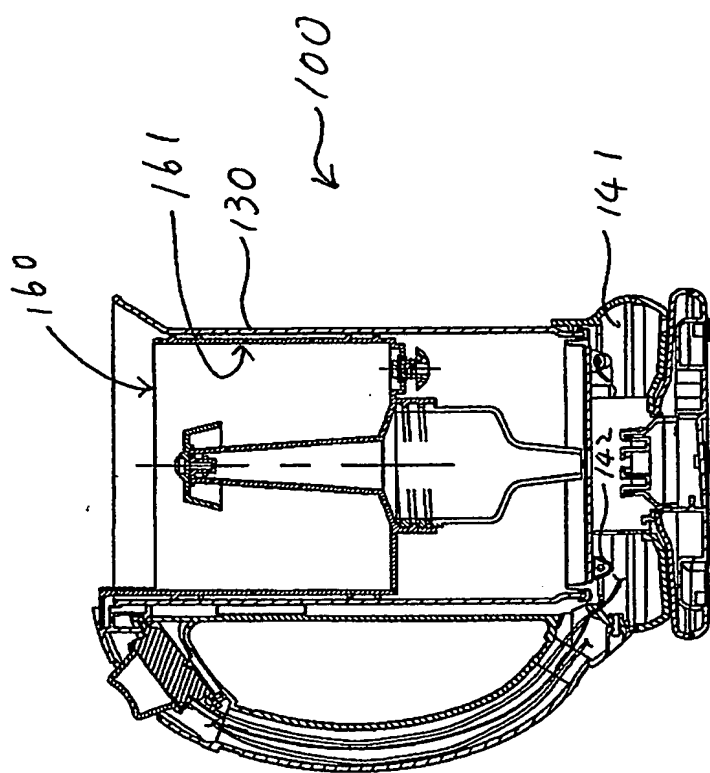


Fig. 5

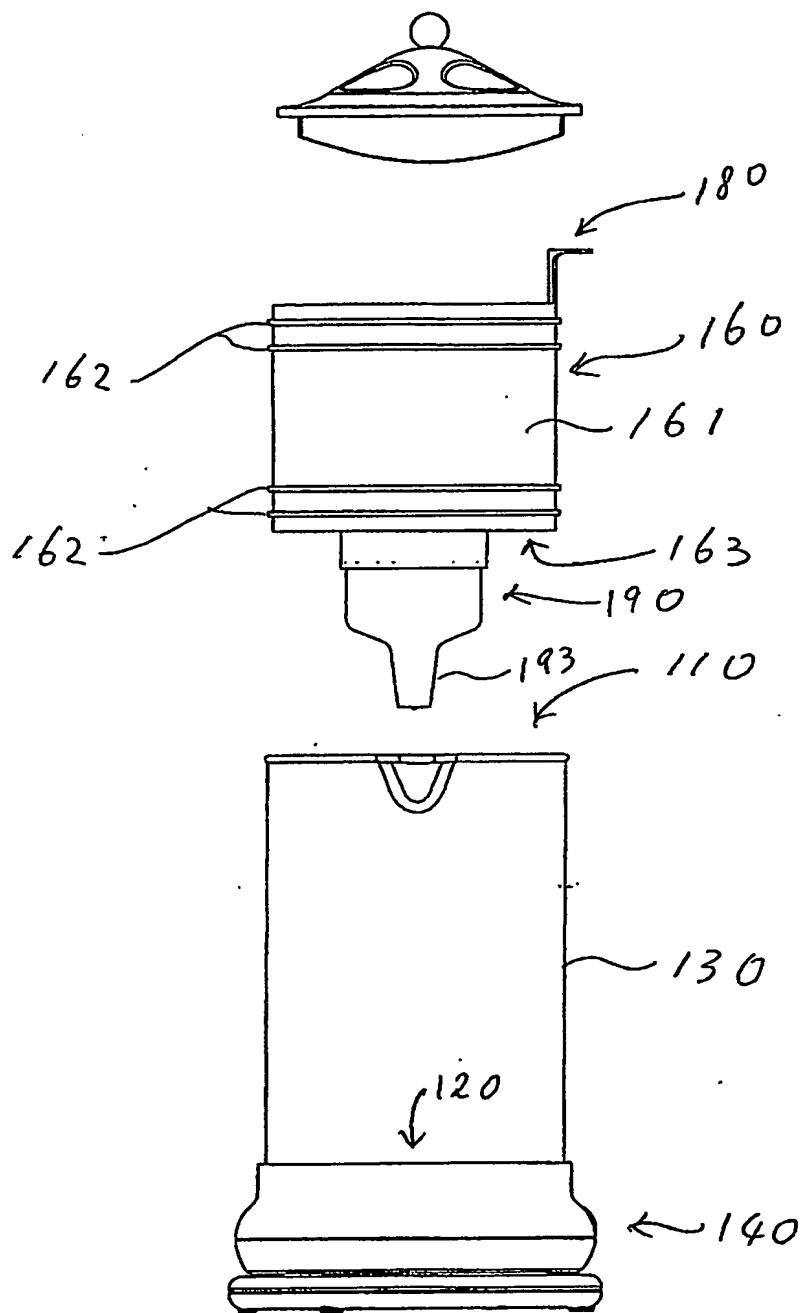
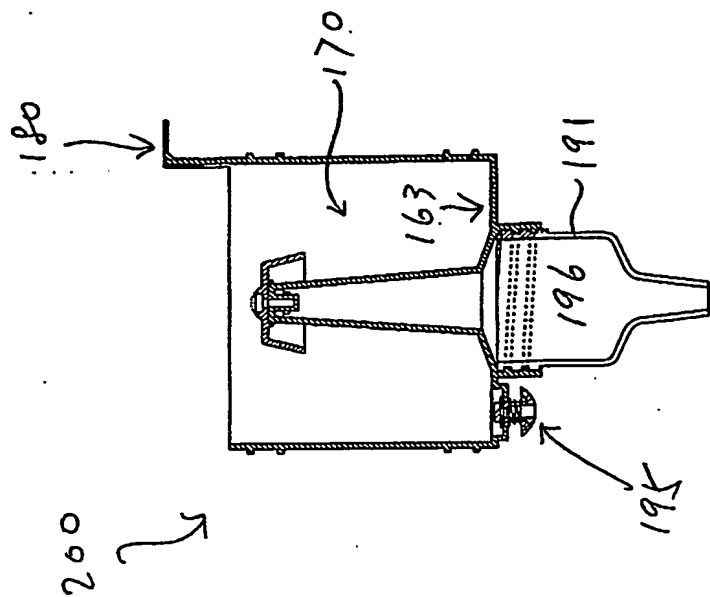


Fig. 6



SECTION 1-1

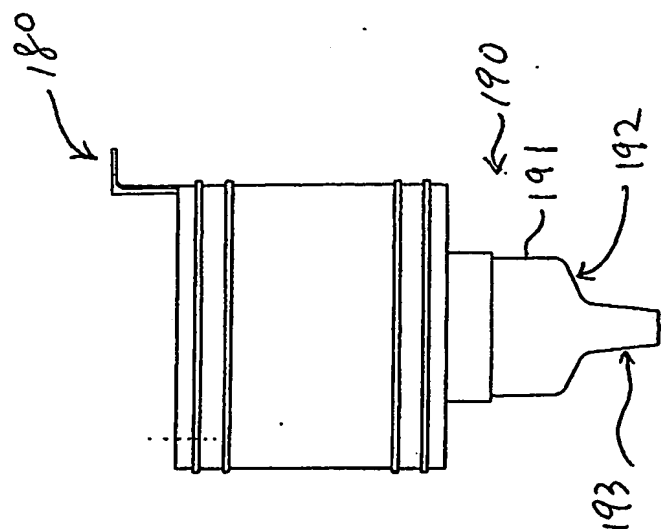
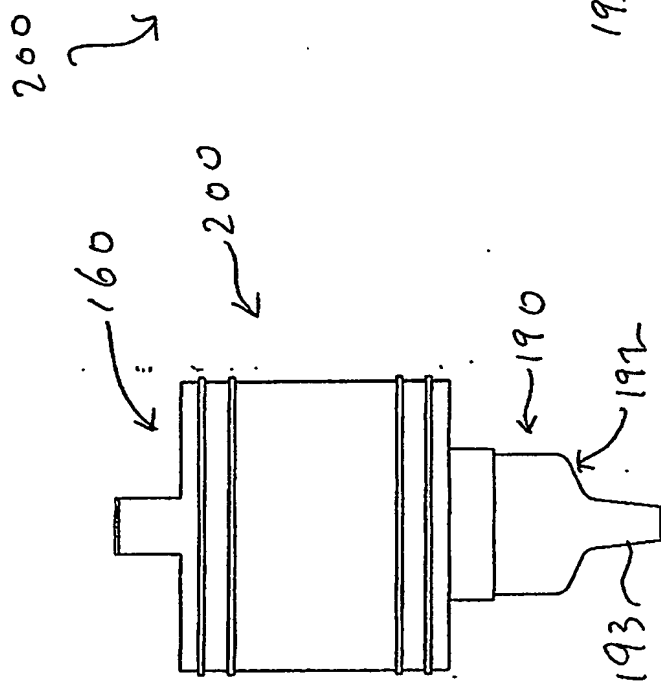
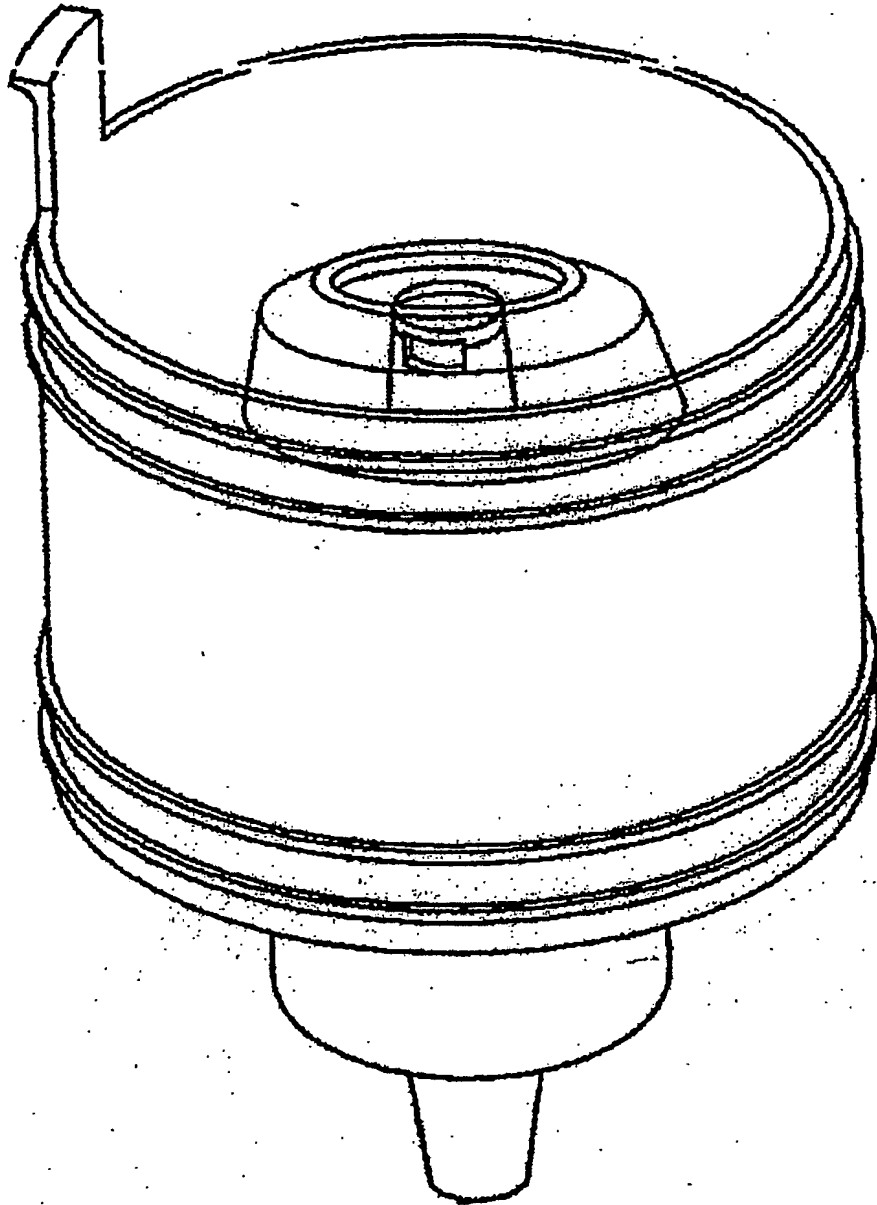
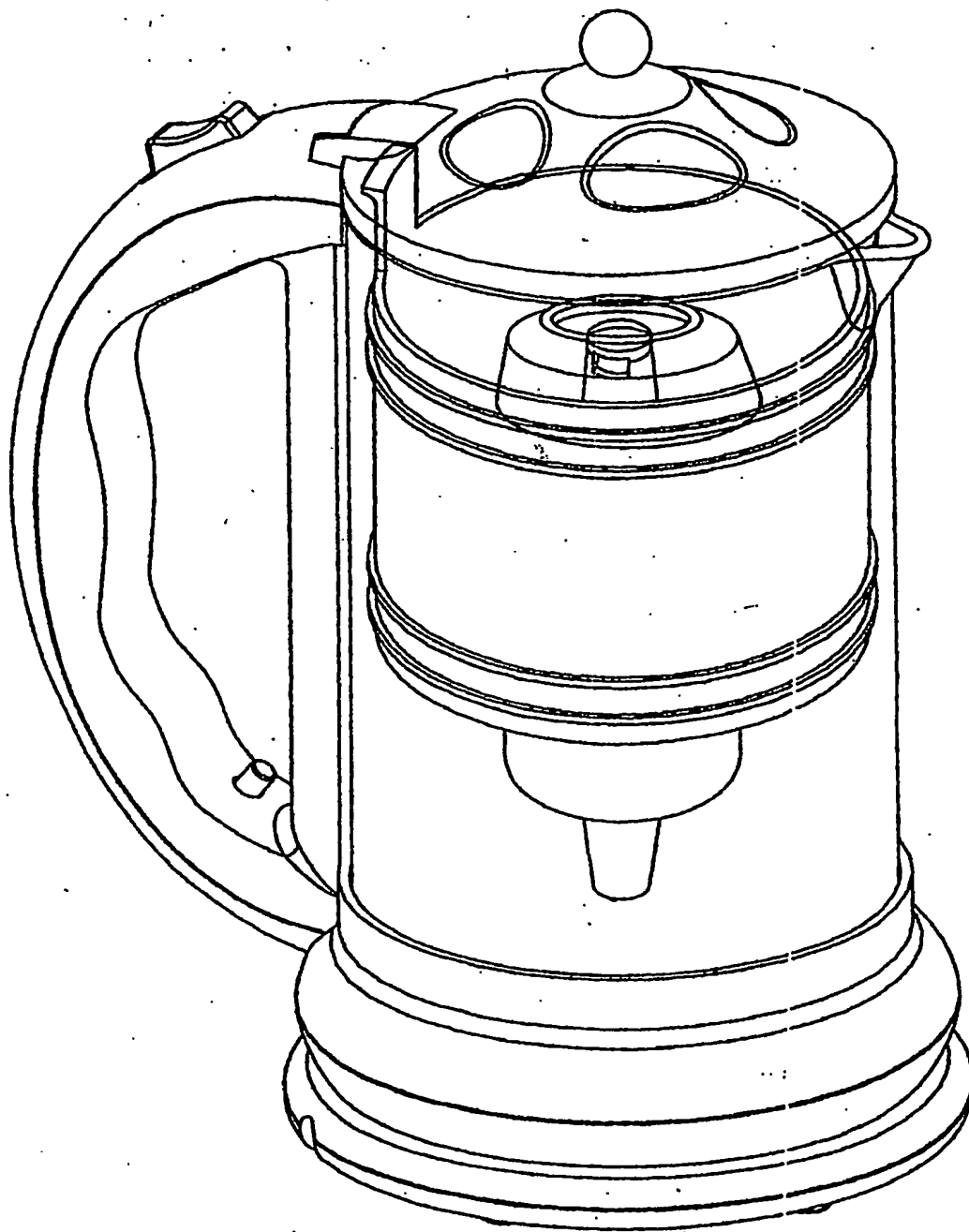


Fig. 7



**Fig. 8**



**Fig. 9**



## ABSTRACT

An improved beverage making apparatus including a main container and a beverage processing sub-assembly for rapid and controllable brewing of beverages such as tea, coffee or the like. The beverage processing sub-assembly includes a partitioning member which defines a pressurized chamber for pushing hot boiling  
5 water through the fluid guiding means of the beverage processing means for interaction with the beverage making substances stored in a compartment within the sub-assembly. The interaction between the hot boiling water transit through the beverage processing sub-assembly and the beverage making substances, such as  
10 tea or coffee, produce flavoured beverages. The apparatus is further provided with a controllable heating means to control the transit time of the hot water through the beverage processing sub-assembly to control the brewing process to obtain beverages of desirable characteristics.

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